Remarks

Claims 1-35 are currently pending the application. Claims 1, 10, 12, 13, and 15 have been amended. Support for the amendments to claims 1, 10, 12, 13, and 15 can be found throughout the instant application.

Responsive to the requirement for election, Applicants hereby elect the claims of Group I, claims 1-17, drawn to a catalyst composition and the process of making the composition, classified in Class 502, Subclass 66, but respectfully requests reconsideration of the requirement for restriction for the reasons given below. Non-elected Group II, claims 18-35, drawn to a desulfurization process, classified in Class 208, Subclass 208R, is retained in this application pending reconsideration of the requirement for restriction.

The requirement for restriction is respectfully traversed. The requirement for restriction is based, at least in part, on the grounds that the invention(s), as set forth in the Office Action, are distinct and have acquired a separate status in the art as shown by the cited classifications and that the fields of search are not the same. Both art classes referred to in the Office Action properly would be searched even if the Group II claims did not exist. Claims 18-35 claim a process that uses the composition claimed in the Group I claims.

The claims of Group I, drawn to a catalyst composition useful for desulfurization, and Group II, a process for desulfurization using the composition of the Group I claims, are so closely related in this application so as to be allowable in a single application. Both groups of claims clearly relate to entire processes, either in whole or in part, useful for sulfur removal. The Examiner alleges that the process, as

claimed in claims 18-35, can be practiced with another materially different product. Applicants respectfully suggest that the desulfurization process, as claimed in the Group II claims, is intimately related to the catalyst composition claimed in the Group I claims. The Examiner is respectfully requested to see the examples of the pending application that provide data to show that the composition of the Group I claims can be used in the process claimed in the Group II claims.

Furthermore, the Examiner is respectfully requested to refer to MPEP 803, second paragraph, which encourages combination, such as the combination of Group I and Group II claims in this application.

The Examiner has objected to claims 1, 10, 12, 13, and 15. These claims have been amended per the Examiner's request.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-8 under 35 U.S.C. 103(a) as being unpatentable over Drake et al. (U.S. 6,083,379) in view of Clausen (Structure and Stability of Nitrided Alumina-Supported MO Catalysts) and Wu et al. (U.S. 6,162,352).

Drake discloses a hydrodesulfurization catalyst. This catalyst comprises alumina and a metal selected from the group consisting of molybdenum and tungsten. The catalyst can also contain an additional metal, selected from the group consisting of iron, cobalt, and nickel. Preferably, the catalyst is presulfided (*see* Drake, col. 5, lines 13-25).

Clausen discloses alumina supported, unpromoted molybdenum catalysts that are nitrided and sulfided. *See* Clausen, second paragraph.

Wu discloses a sulfided composition comprising, consisting of, or consisting essentially of, a zinc spinel, a zeolite, alumina, cobalt and molybdenum. *See* Wu, column 1, lines 64-67. Wu discloses an elemental molybdenum weight percent in the range of from about 1 weight percent to about 50 weight percent based on the total weight of the catalyst composition. *See* Wu, column 4, lines 18-23.

Applicants argue that Drake, Clausen, and Wu do not disclose the instant invention, either alone or in combination. The Clausen reference is not properly combinable with the Drake reference. Clausen notes "little is known about the transformation of the nitride structures and the structure and morphology of the resulting sulfide structures" (*see* Clausen, first paragraph). Therefore, it would not have even been obvious for Drake to nitride the HDS catalyst, along with the pre-sulfiding. There is no need for pre-nitriding even suggested in the Drake reference. Applicants assert that one of ordinary skill in the art would not find motivation in Drake to seek out the nitriding of Clausen. In addition, there is no suggestion in Drake to seek out the weight percents of Wu.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 9-17 under 35 U.S.C. 103(a) as being unpatentable over Wu (US 6,162,352) in view of Clausen (Structure and Stability of Nitrided Alumina-Supported Mo Catalysts).

Wu discloses preparing a catalyst composition by mixing a zeolite, zinc spinel, and alumina together to form a mixture. The mixture is then shaped, preferably into extrudates. The mixture is thereafter calcined, and then it is incorporated with cobalt and molybdenum, and then it is calcined again. Then, the

catalyst is sulfided (See Wu, col. 2, line 52 – col. 3, line 45). Clausen discloses nitriding, and then sulfiding alumina-supported unpromoted molybdenum catalysts (See Clausen, 2nd paragraph).

The Examiner states "It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Wu to utilize the ammonia based nitriding of Clausen because both the Clausen and Wu references utilize catalysts that are effective for the purpose of hydrotreating and removing impurities. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein nitriding is accomplished at least in part by contacting the cobalt/molybdenum modified catalyst with a decomposable nitrogen-containing compound at a temperature of from 650 C to 800 C because nitriding is disclosed by the Clausen reference and it would be appropriate to utilize any temperature needed for accomplishment of nitriding so that an effective catalyst composition is formed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein nitriding is performed prior to contacting the cobalt/molybdenum catalyst with a sulfur-containing hydrocarbon stream under hydrodesulfurization conditions because Wu discloses a process whereby sulfiding is performed prior to contacting the catalyst with a sulfur-containing hydrocarbon stream under hydrodesulfurization conditions and the Clausen reference discloses nitriding prior to sulfiding." (See Office Action, page 7, paragraph 3, to page 8, paragraph 1). Applicants respectfully disagree.

Applicants submit that neither Wu nor Clausen, either alone or in combination, disclose the claimed invention. Clausen discloses nitriding an alumina-supported, unpromoted molybdenum catalyst. The Wu compound has a zeolite, a zinc spinel, and cobalt in addition to alumina and molybdenum. This is clearly a different composition. It is not obvious that nitriding would also be effective for a different catalyst just because that different catalyst can also be used for hydrotreating and removing impurities. If two catalysts are used for the same purpose, but are in fact different compositions, then it is not obvious that the same pretreatment would be effective on both catalysts. Applicants submit that claim 9 of the instant application distinguishes over Wu by including the additional limitation of nitriding a cobalt/molybdenum alumina catalyst prior to sulfiding. The Clausen reference does not supply the nitriding limit because it is not properly combinable with Wu. There is no motivation to combine Clausen with Wu, apart from improper hindsight.

In view of the amendments and arguments above, claims 1-35 are believed to be in condition for allowance. Therefore early allowance of claims 1-35 is respectfully requested.

Respectfully submitted,

RICHMOND, HITCHCOCK,
FISH & DOLLAR

By _____
Bronwyn A. Welvaert
Registration No. 52,350

BAW/adh

RICHMOND, HITCHCOCK
FISH & DOLLAR
P.O. Box 2443
Bartlesville, Oklahoma 74005
1-918-661-0652

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450, on

21 September 2003
(Date)

Bronwyn A. Welvaert